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1949 MEETING, SAN FRANCISCO
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Authors of papers intended for publication in Food Technology should request from the Editor's office a copy of a booklet, titled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

The Institute of Food Technologists assumes no responsibility for statements in contributed articles appearing in Food Technology. Editorials present only opinions of the writers and do not necessarily reflect policies of the Institute of Food Technologists.

News of the Institute

1949 CONVENTION IN SAN FRANCISCO

Plans for the 1949 Convention in San Francisco (July 10-14) are progressing rapidly, and hotel reservations are already pouring in. The United Air Lines have been designated as the official air route to the Convention. The railroad transportation is being covered by the Southern Pacific Company and the Santa Fe Railroad Company. Every member on the national roster will be contacted by these carriers. Make your reservations early, in order to be sure of accommodations.

A LETTER FROM PRESIDENT H. C. DIEHL TO REGIONAL SECTION CHAIRMEN AND MEMBERS OF I. F. T.

November 10, 1948

A very enjoyable meeting with the Northern and Southern California Regional Sections at Los Angeles reminds me that I owe you all an informal memorandum on what has taken and is taking place in the Institute. I am still seeking to adapt my travel schedule to the dates of as many Regional Sections as I can, so that I can meet with you personally during the year. But the country is very, very large, my travel dates to specific areas and Section meeting dates are difficult to harmonize, and besides the Foundation also has jobs for its Director—so the problem of meeting with you is not easily solved.

Council Meets January 16

The Institute Council will meet on January 16, 1949, at the Lafayette Hotel in Atlantic City. May I suggest that you discuss in your Section meetings the matters to be brought by the Councilors to the attention of the Council at this mid-year meeting. Please notify Carl Fellers as soon as possible of the subject matter that should be placed on the Council agenda.

Publicity for Annual Meeting in San Francisco

The Institute Program Committee (Emil Mrak, Chairman) and the San Francisco Conference Committee of the Northern California Section (Ray Junk and Hugh Griswold, Co-chairmen) have both been most active and productive in their planning and implementing. The San Francisco program is shaping up unusually well and will be released to you just as soon as Emil Mrak gives the green light.*

On Saturday, November 6, Arthur Prater, Chairman of the Institute Committee on Publicity, met in Berkeley with others concerned with the publicity work for the annual conference in July to bring about, at my request, a working link between the general publicity of the Institute and the specific conference publicity. Present were Hugh Griswold, Walter Richert, Carl Havighorst, Elverton Stark, Alan Richardson, Arthur Prater, and myself. Clear delineation of duties and responsibility for all concerned were achieved and besides, in the interests of long-range planning, we hope to leave a record of procedure and results for future use by the Institute.

Consolidation—An I. F. T. Objective

This statement brings me to one of the objectives of my administration—consolidation of our organizational procedures so that each new administration of the Institute will find evidences of continuity in procedure and policy to guide it, without lost time and effort.

As President I am asking every Committee of the Institute not only to carry on its duties for the current year but also to study its function in the Institute and to recommend the adoption of demonstrated functions as continuing or new policy in the best interests of the Institute, as each committee sees this. Perhaps some committees may decide that they do not effectively serve an objective. In any event let us get all of the facts that we can so that the Institute Committee on Organization (William Campbell, Chairman) which has for your President a very important function this year, and the Institute Council may have the benefit of the thinking of many members of the Institute. From this thinking, at administrative level, can be distilled the most effective action to be taken by future administrations in the conduct of the Institute's business.

Recognition—We're Getting It

Our actions in the field of recognition for the Institute have already borne fruit. As liaison representative of the Institute on the Food and Nutrition Board of the National Research Council, Fred Blanck has been appointed. The Committee for Liaison with the Armed Services (Milton Parker, Chairman) is now exchanging correspondence with General McAuliffe of the General Staff of the Department of the Army in consideration of two major points: (1) recommendation of an Institute committee as the most effective functional relationship between the Institute and the Department of the Army either during periods of peace or in event of an international emergency and (2) committee recommendations for procedure in supplying Army needs for trained food technologists during a period of peace, during a period of expansion prior to actual mobilization, or during a war period.

This committee is also in touch with General Hershey, Director of Selective Service, and the Chairman of the National Security Resources Board.

Publication Plans Progressing

One of the most urgent and important decisions to be made in the interests of the Institute has been that dealing with procedure in solicitation of advertising for FOOD TECHNOLOGY. The Committee on Publications, notably its Chairman, Walter Pheteplace, has done a yeoman's job for the Institute in analyzing the action of other professional societies and the results of their journal advertising programs.

As a result of two conferences in Chicago and Los Angeles between John Knowles and Philip Bates, mem-

* Announcements regarding the program plans appear on the final pages of this issue.—Editor.

bers of the committee, the committee Chairman and the President and Secretary-Treasurer of the Institute, the decision was made after long deliberation to have the advertising handled by a professional advertising representative rather than by an advertising committee of the Institute. Advantages and disadvantages of both methods had to be weighed in prolonged discussion in order to make an arrangement which would give maximum financial return to the Institute.

If the Institute had a permanent business office and Executive Secretary it is likely that we could have advantageously handled the advertising ourselves, but facts confronted those who had to make the decision, who in the final analysis was the President himself, and he has made it deliberately as the best one possible under the circumstances.

John Knowles has taken the assignment of having a contract prepared which will protect the Institute interests adequately and is really more favorable to us, though still acceptable to the advertising representative, than any previously before the Institute.

Thus, while the Council in June authorized the employment of an advertising representative, the painstaking work of the Committee on Publications and the effects of time for further study and reflection have resulted, I believe, in a better "deal" for the Institute than we were originally prepared to accept.

Toward Larger Membership—More Sections

In the field of membership and Regional Section extension, the respective Institute Committees (Larry Heid and Roger Wilson, Chairmen) are working faithfully in the interests of the Institute. In Georgia, in Virginia, around New Orleans, in West Texas, in Oregon, in the Twin Cities, in British Columbia, in Eastern Canada—in all these areas active consideration of the matter has been in progress. This does not mean that Regional Sections will at once arise in all of these areas; in fact, it is better for the Institute if the growth in this respect is gradual. But you may be assured that all desirable expansion of the Institute is being considered and fostered.

The amendments proposed to membership recently by the Constitution Committee (E. S. Stateler, Chairman) have now been approved. The Constitution Committee is now studying the recommendations of the Committee on Student Groups (Charles Smith, Chairman) regarding the procedure for implementing student membership in I. F. T. under the Constitutional procedure.

A Basic Need—An Executive Secretary

Very active consideration is being given to the eventual appointment of a salaried Executive Secretary for the Institute and the selection of its business headquarters. The final action is not likely to take place in this administration. Financial preparation is necessary, through increased membership dues and income from advertising and other sources. This preparation must be so thorough that there is no doubt about continuity of the headquarters undertaking, once it has been implemented. The Committee on Budget and Finance, through its Chairman, Philip Bates, plays a large role in this decision. At present it seems to us that the earliest moment for initiating this undertaking is the latter part of 1949, but it is now definitely in sight.

I can assure you all with utmost sincerity that daily conduct of the business of the Institute by a salaried Executive Secretary, of demonstrated capacity for the job, will do more than anything else to give that continuity of action and policy which is so essential to the best functioning of the Institute in the future.

Responsibilities of I. F. T. Are Increasing

As the Institute grows (especially now that it is represented in the four corners of the country and in regions between), it is urgent that we study thoroughly and with an open mind, our mode of functioning, so that changes in our responsibility and influence, which creep up almost imperceptibly as we grow, will be recognized and met with necessary action. This does not mean that the Institute should be super-sensitive to every proposal for change in its organization or activity, because modern life, in my opinion, already makes us too sensitive to outer influences and too quick to speak and act. But the Institute should continue to be alert to essential changes having good influence on its future, made after full deliberation and lapse of sufficient time to let things "jell," and then implemented in a progressive spirit. Thus we follow the fine traditions of the Institute's history, and meet the demands of a rapidly changing modern environment.

I hope that my somewhat chatty report interests you; my reason for addressing it to you is solely that I think Institute membership should know more about its current business. Perhaps some day there will be a better vehicle for such progress reports than this memorandum, which I am sending with my best wishes.

Sincerely yours,

H. C. DIEHL, *President*

FOOD TECHNOLOGISTS IN BRITISH COLUMBIA

LETTER TO THE EDITOR, NOVEMBER 19, 1948:

The last issue of FOOD TECHNOLOGY carried a note regarding the development of Food Technology groups in Canada. You will be interested in some of the organization that has taken place in the Vancouver, B. C. area.

Last April about twenty persons interested in Food Technology organized an informal group in Vancouver. By the end of May this group had grown to a membership of about forty-five. The fall meetings, three of which have been held to date, have been encouraging in the response shown by persons towards food technology. The membership to date is over seventy. Of this total, there are about 18-20 who are now members of the I. F. T.

The group, now known as the B. C. Food Technology Group, thought it advisable to remain unaffiliated with either the Canadian or American group during their first year or until it was indicated that sufficient interest was present in this area to sustain a permanent organization.

We have endeavored to obtain speakers who will emphasize the fundamental work in Food Technology and will illustrate how these developments have been useful and advantageous in industrial practices. At the two spring meetings we were favored by talks by Dr. H. L. A. Tarr of the Pacific Fisheries Experimental Station on the "Browning Reaction," and by Mr. W. W. Blankenbach, Chief Chemist for the B. C. Sugar Refinery, on the "Story of Sugar." In September, Dr. Paul Trussell, head of the Nutritional Division of the B. C. Research Council, spoke on the "Microbiology of Food Processing." At the October meeting, Dr. J. R. Campbell, Professor in the Dairy Department at the University of B. C., discussed the subject of "Enzymes," and their application in food manufacture. Mr. A. W. Lantz of the Fisheries Experimental Station discussed the "Meat Processing Industry" at the November meeting.

The speakers for the subsequent months through April have been arranged for, and will cover the subjects of "Food Processing Equipment," "Canadian Food and Drug Act," "Nutritional Aspects of Cooking," and "Sanitation."

The interest in Food Technology has been materially advanced in B. C. during the past year or so by the newly formed Food Technology courses given at the University of B. C. under the direction of Dr. B. A. Eagles. I was instrumental in having our Company offer the first scholarship in food technology at the University, to be called "The Nabob Foods Scholarship." Next May, the University will graduate its first students from the five-year course in Food Technology.

The present committee members are, Mr. J. C. Barr, Commercial Chemicals Ltd., Dr. N. E. Carter, Pacific Fisheries Experimental Station, Dr. B. A. Eagles, University of B. C., Mr. G. Roger Wood of the Woods Laboratory, and myself. The last two are Secretary-Treasurer and Chairman, respectively.

I trust that this information will be of interest to you and I. F. T. members.

Yours truly,

C. Wilson Eddy,
Research Department,
Kelly, Douglas & Co.
Vancouver, B. C.

POSSIBLE NEW REGIONAL SECTION

In the Virginia-North Carolina coastal area, steps have been initiated by Colonel Charles S. Lawrence (President of the Quartermaster Board at Camp Lee, Virginia) relative to the possible formation of a regional section in Richmond. Considerable interest has already been indicated, and it is hoped that in a few months I. F. T. may welcome a new regional section.

STUDENT GROUPS

Active groups of students who will be future food technologists are already in existence at Michigan State College, at the University of California (Berkeley), and at Oregon State College, under the sponsorship of Professor Roy E. Marshall, Professor Reese H. Vaughn, and Professor Ernest H. Wiegand, respectively.

An active student group has recently been formed at the Massachusetts Institute of Technology under the name of the "Samuel Cate Prescott Chapter." The purpose of this organization is to acquaint the members with the activities of the National I. F. T. and the Regional Sections, to promote a professional feeling, to disseminate technical information, and to foster social activities enabling the members to become better acquainted. A constitution has been drawn up, and officers have been elected as follows:

President.....Herbert V. Shuster
Vice-President.....Pressley W. Jones, Jr.
Secretary-Treasurer.....Leonard A. Levenson
Chairmen of Committees:
Program.....Darshan S. Bhatia
Social.....Kenneth S. Rymal
Publicity.....Paul B. Butler

The first meeting of the Prescott Chapter after its inception was held on November 22, 1948. On this occasion, Professor B. E. Proctor, I. F. T. Vice-President, gave a short, introductory talk and then the main speaker of the evening, Dean Samuel C. Prescott, spoke on the subject of "Tea and Coffee." Motion pictures on "Bananas" and on the "Nutritional Aspects of Food" were then shown. Approximately fifty students, faculty members, and guests were present, interest in the organization was high, and there is every indication that the organization will have a bright future. It is planned to hold meetings about once a month.

RECOGNITION

Barbour L. Herrington, Professor of Dairy Chemistry at Cornell University, Ithaca, New York, has received the Borden Award in Chemistry of Milk for his research in dairy chemistry at Cornell University. The award was presented to him on September 13, 1948, in Portland, Oregon, on the occasion of the Western Session of the 114th National Meeting of the American Chemical Society.

Dr. Roy C. Newton, a former National President of I. F. T. and now Vice-President of Swift & Co., Chicago, was presented with the Honor Scroll of the Chicago Chapter, American Institute of Chemists, at a dinner in Chicago on October 8, 1948.

The Institute of Food Technologists is proud of the scientific recognition received by these esteemed members and extends to them heartfelt congratulations.

Dr. Donald K. Tressler, of Westport, Connecticut, represented the United States in Copenhagen, Denmark, on October 11-20, 1948, at a Conference on Refrigeration and Freezing of Food under the auspices of the Food and Agriculture Organization of the United Nations. Representatives of sixteen European countries conferred on technological problems of food refrigeration. Dr. Tressler presented several lectures and gave instruction in the most recent American methods of freezing food.

Dr. J. A. Shellenberger, head of the Department of Milling Industry, Kansas State College, Manhattan, spent two months in the fall of 1948 in Costa Rica and El Salvador on an assignment for the Food Supply Division of the Institute of Inter-American Affairs.

Z. I. Kertesz, Professor of Chemistry at the New York State Agricultural Experiment Station, Geneva, has been granted a sabbatical leave to carry on studies in Australia. At the joint invitation of the Division of Food Preservation and Transport, CSIR, the Australian Chemical Institute, and the Food Technology Association, he left Geneva early in November to study, for six months, the biochemical aspects of food production and processing in Australia. His headquarters are at the Chemistry Department, Sydney Technical College, Ultimo, Sydney, N. S. W.

NICHOLAS APPERT AWARD

The Chicago Section has announced that the Committee of Judges on the Nicholas Appert Award has selected Dr. Roy C. Newton, Vice-President of Swift & Company, Chicago, as the recipient of the medal in 1949. Congratulations are extended to Dr. Newton, who will receive this honor in recognition of his outstanding accomplishments in the field of food technology.

ACTIVITIES OF I. F. T. MEMBERS IN OTHER ORGANIZATIONS

A development of interest to all food technologists and sanitarians is the National Sanitation Foundation's sponsoring of clinics in which the panels are equally divided between industry and the United States Public Health Service. In June 1948, a 5-day meeting was held at the University of Michigan School of Public Health, in Ann Arbor, Michigan. At this time Mr. George W. Shadwick, Chief of the Quality and Control Laboratory of Beatrice Foods Company and a member of the Chicago Section of I. F. T., was appointed co-chairman representing industry, and Mr. Russell Hart of the United States Public Health Service, 7th Area Office of Kansas City, Mo., was appointed co-chairman representing the U. S. Public Health Service. It is hoped that such concerted efforts on the part of industry and the U. S. Public Health Service will accomplish much in solving problems in food handling.

The Chicago Technical Societies Council held a dinner meeting on September 22, 1948, entitled "Meeting the Editors." The Chicago Section of I. F. T. was represented at this meeting by E. S. Stateler, J. M. Jackson, M. E. Parker, and L. A. Hall.

At the American Meat Institute's meeting in New York City in September 1948, Victor Conquest of Armour & Company, Chicago, talked on the "Future of Animal Fats." He also spoke on "Egg Products" at the October meeting of the Mid West Section, American Association of Cereal Chemists.

At the meeting of the Iowa Sewage Works Association in Des Moines, Iowa, Robert W. Bates of Armour & Company, Chicago, presented a paper on "A Discussion of Packing Plant Waste Disposal."

At the meetings of the American Chemical Society held in Portland, Oregon, in September 1948, papers were given by I. F. T. members as follows:

W. V. Cruess (Berkeley, California). "The Effect of Adding Crude Plaster of Paris to Sherries Before and After Fermentation of the Juices." (Joint with Irene Brajnikoff).

Lionel A. Farber (San Francisco, California). "Evaluation of Indexes for Spoilage of Fish."

At a symposium on marine products, held in connection with the same meeting in Portland, the darkening of crabmeat by iron sulphide was discussed by Ray W. Clough, O. Eugene Shostrom, and Ernest D. Clark (all of Seattle, Washington).

Ernest C. Crocker (Cambridge, Mass.) is Chairman of the Northeastern Section of the American Chemical Society for 1948-49, and Bernard E. Proctor (Cambridge, Mass.) is a member of the A. C. S. Public Relations Committee, 2. Special Committees.

I. F. T. members at present serving on the Frasch Foundation Awards Committee, American Chemical Society, are Bernard E. Proctor, Chairman, Frederick C. Blanck, Charles N. Frey, Frank L. Gunderson, and Roy C. Newton.

The American Chemical Society's Committee on the Borden Award in the Chemistry of Milk is presently composed of I. F. T. members as follows: Ira A. Gould, Jr. (College Park, Md.), Chairman, Harry J. Deuel, Jr. (Los Angeles, Cal.), and Conrad A. Elvehjem (Madison, Wis.).

Roy C. Newton (Chicago) is a member of the Constitution and By-laws Committee, American Chemical Society.

The meeting of the Executive Committee of the Refrigeration Research Foundation, held in Chicago in the fall of 1948, was attended by Helmut C. Diehl (National I. F. T. President), Director of the Foundation, and Dr. S. C. Prescott, Dean Emeritus of Science, Massachusetts Institute of Technology.

Carl R. Fellers (National I. F. T. Secretary-Treasurer) is Chairman of the A. C. S. Division of Agriculture and Food Chemistry, L. E. Clifcorn (Chicago) is Vice-Chairman, and Arthur N. Prater (Los Angeles, Cal.) is Secretary-Treasurer.

James M. Brown (Charlestown, Mass.) is Secretary of the A. C. S. Division of Sugar Chemistry and Technology, and Frederick W. Zerban (New York) is Councilor.

At a symposium on "Yeasts in Feeding" held in Milwaukee, Wisconsin, November 8-10, 1948, under the joint sponsorship of the Associates, Food and Container Institute, the Brewers Yeast Council, the Yeast Industry, and the QM Food and Container Institute, the following I. F. T. members participated:

Maynard A. Joslyn (Berkeley, Cal.). "Relation of Basic Investigations to Production and Utilization;" also "Nutrient Requirements."

Lawrence Atkin (New York). "Basic Principles of Culturing and Production."

Elsie Singruen (Chicago). Presided at sessions on Production and Composition.

Joseph E. McClary (St. Louis). "Dry Extracts, Pastes, Hydrolysates, Autolysates, Flavors."

Charles H. Keipper (Milwaukee, Wisconsin). "Commercial Production Practices."

Gustav T. Reich (Philadelphia). "Sugar Refining (Cane and Beet) By-Products."

William D. Ramage (Albany, Cal.). "Agricultural Wastes."

Johannes C. Hoogerheide (Milwaukee, Wis.). "Lipids."

Col. Charles S. Lawrence (Camp Lee, Va.). Presided at dinner.

Emil M. Mrak (Berkeley, Cal.). "Taxonomy, Morphology, and Variations."

At the scientific sessions of the 76th Annual Meeting of the American Public Health Association and meetings of related organizations, held in Boston, Mass., November 8-12, 1948, the following members of I. F. T. participated:

Edwin J. Cameron (Washington, D. C.), Robert W. Pilcher (Maywood, Ill.), and L. E. Clifcorn (Chicago). "Nutrient Retention During Canned Food Processing and Production."

Faith Fenton (Ithaca, New York). "The Effect of Freezing on the Nutritive Value of Foods."

Herbert E. Robinson (Chicago). "The Effect of Curing and Canning on the Nutritive Value of Meat."

Henry T. Scott (Madison, Wisconsin). "The Effect of Processing on the Nutritive Value of Milk and Milk Products."

Frederic W. Nordsiek (New York). "The Effect of Processing on Cereals and Bread."

Frank E. Mott (Boston, Mass.). "Direct Microscopic Clump Counts of Bacteria as Used to Control a Pasteurized Metropolitan Milk Supply."

Edward L. Holmes (Chicago). "Development of an Adequate Educational Program on Sanitation in a Typical Food Industry—the Baking Industry."

Norris H. Sanborn and Edwin J. Cameron (both of Washington, D. C.). "The Organization and Execution of the National Canners Association Program."

Max Levine (Ames, Iowa), joint with Sidney M. Bernstein. "The Effect of Borax on the Germicidal Efficiency of Alkali Washing Compounds."

DEATHS

It is with regret that the Institute announces the deaths of the following members:

Mr. Frank R. James, Purina Mills, 835 South 8th St., St. Louis, Mo.

Mr. Arthur B. Schell, The Hills Bros. Co., 64 Irving St., Brooklyn, N. Y.

Mr. Norman Hernhuter, Joe Lowe Corp., 2744 East 11th St., Los Angeles, Cal.

Mr. William H. Harrison, retired Research Director of the Continental Can Co.; died in North Hollywood, Cal., on August 7, 1948.

COMMITTEE CHAIRMEN, 1948-49

The roster of chairmen of regular and special committees of the Institute is as follows:

Budget and Finance	P. K. Bates
Roster of Scientific Personnel	F. C. Blanck
Selection of Institute Insignia and Membership Certificate	L. V. Burton
Institute Organization	W. L. Campbell
Regional Sections	J. L. Heid
Education and Curriculum	M. E. Highlands
Nominations of the Institute	Paul Logue
Selective Service Deferment	J. H. Nair
Publications	W. D. Pheteplace
Publicity	A. N. Prater
Student Groups	C. L. Smith
Constitution of the Institute	E. S. Stateler
Membership of the Institute	R. V. Wilson
Program	E. M. Mrak
Membership Qualifications	E. M. Chace
Liaison with the Armed Forces	M. E. Parker
Food Industries Award	S. C. Prescott
Stephen M. Babcock Award	H. C. Diehl
Procedure and Nomenclature in Objective Testing	W. A. Maclinn
Symposia	B. E. Proctor
Pectin Standards	J. J. Willaman
Liaison Representative of I. F. T. on Food and Nutrition Board, National Research Council	F. C. Blanck

Regional Section News

CHICAGO SECTION

On May 17, 1948, members of the Chicago Section were addressed by Dr. John H. Hetrick of the Dean Milk Company, Rockford, Illinois. The subject of Dr. Hetrick's talk was "Recent Technological Advances in the Dairy Industry."

On October 18, Milton L. Laing, Chief of the Quality Control Division of Armour & Co. and Past Chairman of the Chicago Section, addressed the section members on the subject "The Food Technologist in the Orient." At this same meeting, Milton E. Parker reported on the activities of the national I. F. T. Committee on Liaison with the Department of the Army. The Army is recognizing the profession of Food Technology and desires to explore means of cooperation with the Institute of Food Technologists.

On November 15, the speaker of the meeting was George F. Garnatz, Director of the Kroger Foundation, Cincinnati, Ohio. His topic was "A Retail Food Distributor Capitalizes on Food Technology."

The annual meeting held on December 13 had two main features, the election of officers, and a talk by our I. F. T. President, H. C. Diehl, concerning I. F. T. matters.

A committee has been appointed to investigate the possibility of incorporating the Chicago Section, with Byron M. Shinn as Chairman.

The Chicago Speakers Bureau, since its organization, has made arrangements for about fifty speaking engagements, thirty of them since January 1, 1948. Requests have been received largely from Chicago and environs, but also from Rockford, Ill., Nebraska, and Massachuetts. The speaking engagements have been evenly divided between men's and women's organizations, and their objectives have been to provide entertainment as well as information regarding food technology.

Vice-Chairman Charles L. Smith has been appointed a liaison officer to investigate preliminary preparations for the 1950 Conference in Chicago.

Colonel R. A. Isker has taken over the duties of Advertising Manager of THE VITALIZER, succeeding I. A. Rausch, who found it necessary to withdraw.

Appreciation of E. S. Stateler's splendid services to the Section during his nearly ten years as Secretary, Executive Committeeman, Vice-Chairman, and Chairman, was expressed by the Chicago Section in the form of a letter to the McGraw-Hill Co.

Dr. Lloyd A. Hall of the Griffith Laboratories and Dr. Percy Julian of the Glidden Company were the subjects of a radio address in June over Station WEEK of Peoria, Illinois, upon the occasion of a special broadcast, sponsored by the Peoria Section ACS, given by John E. Hodge of the USDA Northern Regional Research Laboratory.

Dr. Hall has been appointed sub-Chairman of the Program Committee for the 1949 I. F. T. Conference, with the responsibility for industrial and production papers.

Mr. George W. Shadwick, Chief of the Quality and Control Laboratory of Beatrice Foods Company, at-

tended a 5-day meeting of the Federal Food and Drug Association Conference at Portland, Maine, in June.

Dr. A. L. Elder, Director of Research, Corn Products Refining Company, went to Europe in the fall of 1948 to visit some of the company's foreign plants.

Dr. K. T. Swartz, formerly of the Continental Can Company (Research Department), has accepted a new position with the Quartermaster Food and Container Institute.

Dr. Virgil S. Troy, of the Continental Can Company (Research Department), recently announced his marriage to Miss Edna Peters of Washington, D. C.

Dr. R. W. Pilcher, Associate Director of Research, American Can Company, has been elected Vice-President of the Quartermaster Association, an association of reserve officers and civilians engaged in work in fields of interest to the Quartermaster General.

W. E. Pearce, E. H. Ruyle, O. R. Alexander, and P. W. Hardy (American Can Company) recently attended the meeting of the Association of Official Agricultural Chemists in Washington, D. C.

NORTHERN CALIFORNIA SECTION

On October 29 and 30, 1948, the Third Annual Conference and Joint Meeting of the Northern and Southern California Sections took place in Los Angeles. An exceptionally well organized program was presented, for which members of the Northern California Section gave talks as follows:

Prof. George L. Marsh (University of California). Subject: "Clouding of Beverages."

Dr. W. M. Martin (Schwarz Engineering Co., Redwood City). Subject: "Short High Temperature Sterilization and the Aseptic Canning Process."

Mr. William Pentzer (U. S. D. A., Fresno). Subject: "Recent Developments in Handling and Transportation of Fruits and Vegetables."

Mr. Charles D. Fisher (Coast Laboratories, Fresno). Subject: "Use of Epoxides in Food Preservation."

The discussion leaders for these talks were G. W. Kusserow (Gerber Products Co., Oakland), E. M. Mrak and W. V. Cruess (Department of Food Technology, University of California), and H. M. Pancoast (Food Machinery Corp., San Jose). The speakers were introduced by W. R. Junk (California and Hawaiian Sugar Refining Corp., San Francisco). W. V. Cruess served as Chairman of the afternoon session on October 29.

At the annual meeting of the Northern California Section on December 2, there was an all-day program as follows:

Strohmaier, Leonora H. (University of California, Berkeley). Subject: "Studies on the Toughness of Prune Skins."

Emerson, Oliver H. (U. S. D. A. Western Regional Research Laboratory, Albany). Subject: "The Problem of Bitterness in Navel Orange Juice."

Worthington, Oliver J. (Department of Food Technology, Oregon State College, Corvallis, Ore.) Subject: "Determination of Color in Light Colored Juices."

MacGillivray, John H. (Division of Truck Crops, University of California, Davis). Subject: "A Quality Grade for the Purchase of Canning Tomatoes."

Boggs, Mildred M. (U. S. D. A. Western Regional Research Laboratory, Albany. Subject: "Comparison of the Quality of Frozen and Dehydrofrozen Peas with Fresh and Stored Pod Peas."

Hungerford, E. H. (International Minerals and Chemical Corporation, San Jose). Subject: "Uses of Monosodium-Glutamate with Notes on its Manufacture."

Prince, R. N. (California & Hawaiian Sugar Refining Corp., Crockett, Calif.). Subject: "Quick Method for Determination of Degree of Inversion of Sucrose."

Lamb, Frank (National Canners Association, San Francisco). Subject: "Spray Residues (Progress Report)."

Somers, Ira (National Canners Association, San Francisco). Subject: "Problems in Use of Detergents."

Collier, C. P. (Research Dept., Food Machinery & Chemical Corp., San Jose). Subject: "General Physical and Chemical Aspects of Food Preservation with Epoxides."

Murphy, J. R. (Research Dept., Food Machinery & Chemical Corp., San Jose). Subject: "Studies on the Thermal Resistance of Spores of Certain Putrefactive Anaerobes."

Dimick, K., and Ponting, J. D. (U. S. D. A. Western Regional Research Laboratory, Albany). Subject: "Enzyme Inactivation in Fruit Purees."

Lowe, Edison, and Howes, John (U. S. D. A. Western Regional Research Laboratory, Albany). Subject: "An Improved Hot Thermocouple Anemometer for Measuring Velocities in Air-Blast Freezers."

National Technical Laboratories, South Pasadena, California. Subject: "Instrumentation."

The following three national members have been admitted to membership in the Northern California Section: Henry C. Strecker (Beech-Nut Packing Co.), Dr. John McConnell (National Canners Association), and Samuel Rogers (Campbell Soup Co.). The following were approved as new members of the Section: Jack L. Ricard (Campbell Soup Co.), L. Richard Liebnach (W. R. R. L.), Valentine C. Van Duzer, Jr. (Wm. Stange Co.), Dr. Harold S. Olcott (W. R. R. L.), John W. Loehler (Pfaudler Sales Co.), and Mrs. Juracy Tejo (Division of Food Technology, University of California).

Publication of the second national issue of the *Hornblower* has been postponed until January, 1949.

Paul C. Wilbur, Vice-President and Director of Research of the Food Machinery Corporation, San Jose, has been to Belgium and other cities in Europe, flying both ways.

Professor Gordon MacKinney, of the Food Technology Division, University of California, spent his 1948 summer vacation in Maine and, while there, attended the annual Gordon Research Conferences at New London, New Hampshire, sponsored by the A. A. A. S. At that time he gave information to those interested on some of the researches carried on at the University of California on dried and canned fruits.

NORTHEAST SECTION

On October 20, 1948, members of the Northeast Section heard 15-minute talks by five speakers, each representing a firm manufacturing one or more food packaging materials and each discussing the value of his product for the particular phase of packaging where it has met with widest acceptance. The speakers were:

Hugh Robinson (New England Manager, Anchor Hocking Glass Co.). Subject: "Food Packaging in Glass."

J. M. Parliman (Technical Director, Plax Corporation). Subject: "Polyethelene as a New Packaging Material."

Manley T. Callender (New England Manager, Cellophane Division, E. I. DuPont de Nemours). Subject: "Cellophane and its Use in Food Packaging."

L. I. Hodgdon (Foreign Sales Manager, Pneumatic Scale Corp.). Subject: "Equipment to Perform Packaging Operations."

A motion picture illustrating the packaging of whole eviscerated poultry in Cry-o-vac bags prior to quick freezing was discussed by John Cross of the Cry-o-vac Division, Dewey & Almy Co., Cambridge, Mass.

The meeting was then thrown open to discussion. On the discussion panel, in addition to the speakers mentioned above, were Mr. John Warren (Package and Packaging Consultant for the American Home Products Co., New York City), and Dr. A. S. Levine (University of Massachusetts).

A Membership Drive Committee was appointed, consisting of W. L. Cummings (Chairman), Herbert Ewell, F. A. Warren, A. S. Levine, Hugh Robinson, B. W. Blair, and W. E. Steinacker.

A Hospitality Committee was also appointed consisting of Mary C. Harrigan (Chairman), Jean F. Caul, Florence Dillon, and Elsie A. Wilson.

A Northeast News Committee has been formed, headed by Ernest C. Crocker of A. D. Little, Inc., Cambridge. Individual members and members of the Membership Drive Committee and the Hospitality Committee have been asked to send word to Mr. Crocker whenever a new member is signed up or any other activity of general interest takes place.

On December 2, Professor W. L. Campbell, Head of the Department of Food Technology, M. I. T., gave an interesting talk on "Modern Production Methods for the Processing of Pineapple in Hawaii." He illustrated his talk with a beautiful color and sound film of the Hawaiian Islands, the inhabitants, and the method of processing pineapples there. He also told of his experiences in Hawaii this past summer, when he visited the plants of the Hawaiian Pineapple Co.

Future meetings of the Northeast Section have been planned tentatively for February 3, March 31, and May 14, the latter at the University of Massachusetts in Amherst.

Mr. Robert P. Mears, formerly Vice-Chairman of the Northeast Section, has moved to Michigan. His new address is Northland Dairy, Division of General Foods Corporation, Evart, Michigan. As Treasurer during the National Meeting in Boston in 1947 (which included many miscellaneous jobs), Bob handled a tremendous amount of detail in a remarkably efficient manner. The Northeast Section is losing one of its hardest working members, but the Great Lakes Section will benefit from this loss. Our best wishes to Bob for success in his new activities.

Robert S. Scull, of the Burnham & Morrill Co., Portland, Maine, the senior member of the Northeast Section's Executive Committee, has been appointed Vice-Chairman of the Section to take the place of Mr. Mears. Newton Cole, of the Walter Baker Co., Division of General Foods, has been elected to take Mr. Scull's place on the Executive Committee.

Professor Carl R. Fellers, National I. F. T. Secretary-Treasurer and Head of the Department of Food Technology at the University of Massachusetts, gave the dinner address on October 29, 1948, on the occasion of the Third Annual Conference and Joint Meeting of the Northern and Southern California Sections, in Los Angeles.

For the February 1949 meeting, a program on fisheries topics is being contemplated, with Mr. Joseph Puncochar of the Fish and Wildlife Service as Chairman.

SOUTHERN CALIFORNIA SECTION

At the Joint Meeting and Third Annual Conference of the Southern and Northern California Sections held in Los Angeles in October 1948, papers were presented by the following members of the Southern California Section:

Dr. A. O. Beckman (National Technical Laboratories, Pasadena). Subject: "Instrumentation in Food Technology."

Dr. Henry Borsook (California Institute of Technology, Pasadena). Subject: "Natural and Synthetic Foods."

Dr. Harry J. Deuel, Jr. (University of Southern California). Subject: "Fat Problems in the Food Industry."

The opening and closing remarks at this Conference were made by Dr. Arthur Prater, Chairman of the Southern California Section. Milton E. Powell (Knudsen Creamery Co. of California) and Ernest Geiger acted as discussion leaders for parts of the program. The speakers from the Southern California Section were introduced by A. J. Haagen-Smit (California Institute of Technology), Arthur Cherkin (Don Baxter, Inc., Glendale), and Anthony J. Lorenz (California Fruit Growers Exchange). M. S. Dunn (University of California) served as Chairman of the morning session on October 30.

Miss Margaret M. Haws, formerly Secretary-Treasurer of the Section, has moved from Los Angeles and hence is no longer able to fill the office she has held in this Section. By vote of the Executive Committee, Miss Margaret G. Morehouse has been appointed to fill this office.

On November 17 the Section held an industrial meeting at the Owens-Illinois Glass Company. Mr. Jack Stanfill, Training Director, was in charge of the program. A motion picture "It's in the Bottle" was shown, and afterwards there was a tour of the plant.

ST. LOUIS SECTION

On October 6, 1948, the St. Louis Section held a dinner meeting, at which the speaker was Mr. Frederick L. Deming, Assistant Vice-President of the Federal Reserve Bank of St. Louis. He spoke on "The Place of the Food Industry in the Economy of the St. Louis Area." In his talk he discussed the economic implications of food processing, the quantities and values of raw materials flowing into St. Louis plants, the values of the processed goods, and the place of the food industry in the over-all economy of the St. Louis area.

On November 4, 1948, members of the Section participated in a plant trip to the Chase Candy Co. in St.

(Turn to page 11, following Notes and Letters)

Regional Section News

(Continued from page 10, preceding technical papers)

Louis, one of the largest and most modern candy plants in the country. The trip included visits to several production units, where operations were explained.

NEW YORK SECTION

The New York Section, hosts for the 1951 National I. F. T. Convention, have selected the Hotel New Yorker as the hotel offering the best facilities. The Convention will be held the week of June 24, 1951.

The first meeting of the 1948-49 season was addressed by Dr. Aksel G. Olsen, Manager of Applied Research, General Foods Corporation, who gave his impressions of food technology in the Scandinavian countries.

The November meeting was addressed by Mr. James Peckham, Executive Vice-President of the A. C. Neilson Company, who discussed the topic "Measuring Consumer Sales of Food Products."

At the meeting on January 19 Dr. C. G. King, Scientific Director of the Nutrition Foundation, Inc., will address the group on the subject of "Recent Advances in Nutrition." Dr. H. C. Diehl, National I. F. T. President, promises to attend this meeting.

L. V. Burton, Executive Director of the Packaging Institute, gave a talk on "Wasted Packaging Dollars and How to Save Them" at the general session of the Packaging Institute held in New York City on October 14, 1948.

WESTERN NEW YORK SECTION

On October 30, at an afternoon meeting of the Western New York Section in Lyman Hall, Syracuse University, members heard informative talks by the following speakers:

Gerald A. Fitzgerald (Frozen Food Foundation, Syracuse). Subject: "Standards for Frozen Foods."

S. W. Brown (Marine Division, Carrier Corporation). Subject: "Recent Developments in Cargo Vessel Refrigeration."

A. A. Munter (Birdseye-Snider). Subject: "Methods of Testing Moisture Vapor Permeability of Frozen Food Packages."

Richard Henderson (Syracuse University). Subject: "Possibility of Better Utilization of Food Proteins."

At a subsequent dinner meeting on this same date, Dr. S. C. Prescott, Dean Emeritus of Science at the Massachusetts Institute of Technology, gave an interesting talk on "Implications of Food on History," dealing with the history and spread of the use of coffee.

Richard Henderson was Chairman of the Program Committee and Mrs. Betty Watts was in charge of the dinner arrangements for this meeting.

Officers for the coming year were elected at the October meeting, as follows:

Chairman: John E. Fix, American Can Co., Lincoln Alliance Bank Bldg., Rochester, New York.

Vice-Chairman: Domenic DeFelice, General Foods Corp., Birdseye-Snider, Albion, N. Y.

Secretary-Treasurer: William S. Conway, Jr., Richardson Corporation, 1069 Lyell Avenue, Rochester, N. Y.

Executive Committee: James F. Hale, The Borden Co., Syracuse, N. Y.; Dr. Catherine Personius, Cornell University, Ithaca, N. Y.; E. I. Sexton, The Best Foods, Inc., 54 Fulton St., Buffalo 4, N. Y.

PHILADELPHIA SECTION

On October 14, 1948, the Philadelphia Section met at the Eastern Regional Research Laboratories of the U. S. D. A. in Wyndmoor, Pa. Following a short talk by Dr. P. A. Wells, the Director of the Laboratories, there was a tour of the buildings, when members of the Section had an opportunity to learn what the Government is doing in food research.

On November 11, 1948, a dinner meeting was held in Philadelphia, at which time Mr. Charles R. Scott, Jr., Superintendent of Plant No. 2, SKF Industries, Inc., spoke on "Statistical Methods and Quality."

Future meetings of the Philadelphia Section have been planned for January 13, February 11, March 10, April 15, and May 12, 1949.

Richard B. Tobin, formerly Production Manager of the Deerfield Packing Co., Bridgeton, New Jersey, is now with Aroostook Potato Growers, Inc., Presque Isle, Maine.

MARYLAND SECTION

The Maryland Section convened for their fall meeting on September 17, 1948, at the Stafford Hotel, Baltimore, at which time Mr. James A. Moore, Assistant Superintendent of the American Sugar Refining Company in Baltimore, talked on the subject of "Sugar Refining."

At the October 15 meeting, Mr. F. E. Boland, Technical Director of the Schluderberg-Kurdle Company, discussed "Cured Meats."

The meeting on November 15 started with a luncheon and inspection tour of the Schluderberg-Kurdle Plant (meat packers), at which there was a large attendance. An evening dinner meeting was held on the same date, at the Stafford Hotel, Baltimore, when Dr. Arnold Johnson of the Seal Test Research Laboratories, National Dairies, Long Island, New York, gave a paper on "The Use of Milk Powder in the Baking Industry."

At the December meeting, held in Baltimore, officers for the year 1949 were elected and Dr. A. H. Warth of the Crown, Cork & Seal Company, Baltimore, spoke on "The Use of Waxes in the Food Industry."

PUGET SOUND SECTION

Seattle was the location of the Puget Sound Section's first meeting of the fall season, held on November 6. The Section was highly honored by having as its speaker Dr. Carl R. Fellers, Head of the Department of Food Technology at the University of Massachusetts, Amherst, Mass., and National Secretary-Treasurer of the I. F. T. Dr. Fellers presented an excellent paper on "Laboratory Service in the Food Industry." He preceded this with a highly interesting and educational talk on the affairs of the Institute.

The meeting was followed by a banquet, which honored Dr. Fellers, a former Seattle resident. Dr. Fellers was greeted by many members who were close friends when he was a professor at the University of

Washington and actively associated with the research program of the Local branch of the National Canners Association.

On November 19, a meeting of international nature was held at the Province Newspaper Model Kitchen Auditorium, in Vancouver, British Columbia, Canada.

IOWA SECTION

The petition of a group of food technologists in Ames, Iowa, to be recognized as a Regional Section of I. F. T. was approved at the National I. F. T. Council Meeting in Philadelphia in June 1948. As a result, the following officers were elected:

Chairman: Wayne H. Montgomery, Penick & Ford, Ltd., Inc., Cedar Rapids, Iowa.

Vice-Chairman: Michael H. Taras, C. A. Swanson & Sons, Omaha, Nebraska.

Secretary-Treasurer: Robert G. Tischer, Food Processing Bldg., Iowa State College, Ames, Iowa.

Chairman of Program Committee: Elmer W. Eickelberg, Fairmont Canning Co., Fairmont, Minnesota.

On October 27, 1948, the fourth meeting of the Iowa Section was held at the Food Processing Building at Iowa State College. On this occasion, Dr. Carl R. Fellers, National I. F. T. Secretary-Treasurer, discussed the origin of the National I. F. T., mentioned some of its present activities, and presented the official charter to the Chairman, Wayne Montgomery, thereby installing the Iowa Section officially. The Secretary-Treasurer, Robert Tischer, was authorized to frame the section charter.

At this same meeting the Chairman appointed a Membership Committee consisting of Michael Taras (C. A. Swanson & Sons, Omaha, Nebraska), Chairman, Winston Ogilvy (Bacteriology Department, Iowa State College), and Harry E. Louk (George A. Hormel & Co., Austin, Minnesota).

Ralph S. Goodale (Marshall Canning Co., Marshalltown, Iowa) was appointed to the By-Laws Committee.

George F. Stewart (Poultry Department, Iowa State College) was appointed the first National Councilor of this new regional section and will represent the Section at the forthcoming Council Meeting in Atlantic City in January 1949.

Dr. Fellers was subsequently the guest speaker of the evening. His talk was entitled "Laboratory Service in the Food Industry." He discussed the place of the laboratory, its activities and personnel, in connection with industry and other factors and indicated that those industries that have allocated a reasonable portion of their budget to laboratory functions have profited greatly thereby.

A motion picture entitled "History of Food Processing," provided by H. J. Heinz Co., was shown by E. W. Eickelberg of the Fairmont Canning Company. At the time the meeting began, it was found that no arrangement had been made for a projector. The Section owes a vote of thanks to Dick Forsythe, Iowa State College Poultry Department, for both his headwork and his footwork in getting a projector on the spur of the moment.

Future meetings of the Iowa Section are tentatively planned for Friday evenings in February and April, the exact dates depending on the availability of speakers.

MOHAWK VALLEY SECTION

At the I. F. T. Council Meeting held in Philadelphia in June 1948, a petition of a group of food technologists in the Mohawk Valley Section to be rated as a regional section was approved. Officers of this newly formed section have been elected as follows:

Chairman: A. S. Burhans
Vice-Chairman: L. G. Cox
Secretary-Treasurer: L. L. Bowers

The Mohawk Valley Section plans to hold approximately eight meetings during the year, with the majority of them in Canajoharie during the winter and at other times in Schenectady, Troy, Albany, or Little Falls, New York.

The first fall meeting of the Mohawk Valley Section was held on October 28, 1948, at the Fort Rensselaer Club. Approximately forty members were present, and Albert S. Burhans presided.

The charter for this new section of I. F. T. was presented at this October meeting by Dr. B. E. Proctor, Vice-President of the National I. F. T. Later Dr. Proctor gave a talk on "The Development and Utilization of Electronic Methods in Modern Food Processing."

A colorful sound movie was presented, depicting pineapple operations in the Hawaiian Islands and the recent large-scale production methods of the Hawaiian Pineapple Company.

William A. Brittin, Food Bacteriologist at the Beech-Nut Packing Company in Canajoharie, was elected as the first National Councilor. He will represent the Mohawk Valley Section at the next meeting of the National Council in Atlantic City in January 1949.

RESEARCH IN MILK AND FOOD SANITATION

The Sanitation Study Section, Division of Research Grants and Fellowships of the United States Public Health Service has announced that a symposium will be held in the Auditorium of the United States Department of Commerce, Washington, D. C. on January 26-27, 1949. The subject will be "Recent Research in Milk and Food Sanitation." Current research only will be covered.

On Thursday, January 26th, there will be two meetings, pertaining principally to dairy science, and on Friday, January 27th, there will be two sessions dealing with various phases of the microbiology of foods.

Book Review

COMMERCIAL FRUIT AND VEGETABLE PRODUCTS, 3rd Edition, by W. V. Cruess, Professor of Food Technology and Chemist in the Experiment Station, University of California. McGraw-Hill Book Company, 1948, 906 pages; 6¼ x 9¼ in.; cloth. Price $8.50.

We expect that all food technologists are familiar with the first two editions of this book. The new edition follows the general plan of the others. The fundamental considerations of fruit and vegetable preservation are dealt with in the early chapters. The main part of the book describes methods of preservation: canning, sun drying, dehydration, pickling, fermentation and freezing.

Ten years have elapsed since the second edition was published. In this period advances have been made in many phases of fruit and vegetable processing. The new material in this book, which contains 108 more pages than the previous edition, describes these advances. With the exception of bringing production figures up to date, the use of some new illustrations, and expanded literature citations, little has been changed. Some material has been added to practically every chapter. The chapters dealing with the freezing of fruits and vegetables and the dehydration of vegetables have been considerably enlarged. Substantial additions were also noted in the chapters dealing with packing cases and other packages, unfermented fruit juices, pickles, vitamins, and the processing of canned fruits and vegetables. A chapter on plant sanitation has been added.

The reviewer was irked by one minor feature in the make-up of the book. Some illustrations have been placed with material on which they have no bearing. For instance, he finds a picture of a wine cellar in the chapter on vitamins, and a peach-pitting machine clarifying the chapter on enzymes. Illustrations should not wander. But this does not affect the value of the book. The reviewer believes that this standard work has been improved, and that those concerned with fruit and vegetable preservation will find it valuable, and well worth the price, even though they have the early editions.

HAROLD G. BEATTIE.

SURVEY OF FOOD AND NUTRITION RESEARCH IN THE UNITED STATES. Food and Nutrition Board, National Research Council, 1947, 306 pages. Price $1.00.

This report contains a comprehensive compilation of research pertaining to foods and nutrition in academic, governmental and industrial laboratories. The contents are divided into the following four sections: (1) Research projects classified by subject, (2) List of organizations conducting or supporting food and nutrition research, (3) List of professional personnel engaged in food and nutrition research, and (4) Comprehensive subject index.

Although 162 pages are devoted to the listing of 4086 individual projects in the fields of Physiology, Chemistry, Technology, Economics, Bacteriology and Psychology, the reviewer does not believe that the list is complete. It would be too much to expect commercial laboratories to report every project worked on, especially in the field of technology. Nevertheless, both this list and the subject index are so comprehensive that the book is important to anyone having a need for locating what laboratories may be engaged in research on any specific subject.

The book includes an alphabetical list of about 5000 persons connected with the researches listed and provides a key for linking these names with the separate list of 606 contributing organizations. The reviewer believes this book to be a worth-while addition to the reference shelf of most technical libraries, but it will be of only occasional use to most food technologists.

AKSEL G. OLSEN.

Selected Abstracts

ANALYTICAL METHODS

1I. Estimation of ascorbic acid in food preparations.

GOLDBLITH, S. A., AND HARRIS, R. S. *Anal. Chem., 20,* 649-51, July, 1948.

The dinitrophenylhydrazine and indophenol methods are equally valid for measuring the ascorbic acid content of garden-fresh vegetables. More than 90% of the ascorbic acid in garden-fresh plant materials studied was in the reduced form. Garden-fresh vegetables, slurried with 4 parts of 0.5% oxalic acid and stored for as long as 2 weeks at room temperature (70-77° F.), may be assayed by the indophenol method to determine the ascorbic acid and dehydroascorbic acid content at the time of assay, and by the dinitrophenylhydrazine method to determine the biologically active ascorbic acid at the time of harvesting. For longer storage times, lower temperatures of storage must be used. The ascorbic acid content of garden-fresh edible plants may be measured in a laboratory remote from the harvest area. Both methods may be employed to establish the freshness of vegetable foods.

2I. Rapid estimation of citrus peel oil. A new turbidimetric method.

BURDICK, E. M., AND ALLEN, J. S. *Anal. Chem., 20,* 539-41 (1948).

A rapid procedure is described for the colorimetric estimation of oils in raw and processed citrus juices. The oil is distilled with acetone and steam to a known volume, an aliquot is diluted, and turbidity is determined. A standardization procedure makes possible correlation of results in terms of the official method of the USDA.

3I. Studies in analytical methods of extracting vitamin A and oil from fishery products.

MIYAUCHI, D., AND SANFORD, F. B. *Comm. Fisheries Rev., 9,* 19-20, Sept., 1947; *Comm. Fish. Abst., 1,* 1, Apr., 1948.

Grayfish livers held at different temperatures were extracted with petroleum ether and by cooking with water. The vitamin A content of the oil extracted with petroleum ether was about 1% higher than for the oil extracted by cooking with water.

4I. Determination of alcohol-insoluble solids and sugar contents of vegetables.

MOYER, J. C., AND HOLGATE, K. C. *Anal. Chem., 20,* 472-4 (1948).

With aid of a Waring blendor and 85% alcohol, sugars are extracted from frozen vegetables. The alcohol-insoluble solids content is determined by filtering the macerate and drying the residue. The alcohol in a small aliquot of the filtrate is evaporated and an aqueous soln. of the residue is clarified by Somogyi's barium hydroxide-zinc sulfate procedure. For estimation of the total sugar content, an aliquot of the clarified extract is inverted with invertase. The sugar content before and after inversions is determined by Nelson's colorimetric method using Somogyi's new copper reagent.

5I. Detection of hidden infestation in wheat.

FRANKENFELD, J. C. *North W. Miller 235,* 4a, July 13, 1948.

A method for detecting this so-called hidden infestation in wheat has been devised, which appears to be both practical and economical. This method consists essentially of treating a sample of wheat with Lugol's iodine solution. The principle involved is that the wheat kernel becomes permeable to the stain at the points where the weevil punctures the seed-coat in feeding or laying its eggs. When the solution is applied to the kernels it penetrates these punctures and stains the adjacent starch particles in the endosperm so that the egg punctures may be easily seen. The characteristic shape of these egg punctures, being quite small and circular, differentiates them from any other injury which the wheat berry might sustain.

6I. On the preservation of starch solution.

SAMUEL, W. A. *Chemist Analyst, 37,* 33, June, 1948.

For ordinary analytical procedures a starch solution with mercuric iodide added to inhibit mold growth may be prepared as follows: Five g. of potato starch and 10 mg. of mercuric iodide are ground in a mortar with 30 ml. of distilled water. This mixture is slowly added with stirring to a liter of boiling distilled water. The boiling is continued for 3 min. After standing overnight, the clear supernatant liquid is removed by decantation. The minute amount of mercuric iodide in the solution does not interfere with its use even in the presence of sulfides or H_2S.

7I. Estimation of water-soluble tannins in cocoa by the cinchonine method.

KAPPELLER, K. *Ztschr. Untersuch. Lebensmittel, 78,* 393-401 (1939); *Nutr. Abst. & Revs., 17,* No. 4167, 848, Apr., 1948.

A gravimetric method is described for the estimation of water-soluble tannins in cocoa by precipitation with cinchonine. The possible sources of error and limitations of the method are discussed. The tannin contents of the fat-free kernels were found to be: Arriba 17 to 18%, Accra 15.3%.

8I. Estimation of cocoa shell in cocoa powder.

MULLER, A. *Ztschr. Untersuch. Lebensmittel, 78,* 150-6 (1939); *Nutr. Abst. & Revs., 17,* No. 4166, 848, Apr., 1948.

The method is based on the fact that while cocoa powder, unadulterated, is very low in crude fiber, the fiber content of the shell is very high. If the origin of the powder and of the shell is known, it is possible to make an estimation of the added shell from the percentage of fiber in the powder. It is pointed out that cocoa shells from different geographical sources have different fiber contents and hence the factor for calculating shell addition will vary.

9I. Determination of chlorogenic acid in coffee.

MOORES, R. G., MCDERMOTT, D. L., AND WOOD, T. R. *Anal. Chem., 20,* 620-24, July, 1948.

A new method for the rapid and precise determination of chlorogenic acid in green and roasted coffee is based upon the absorption of chlorogenic acid at 324 mμ. The chlorogenic acid is extracted from flaked coffee samples with water, and for green coffee the ultraviolet absorption is measured directly on the extract before and after precipitation of the chlorogenic acid with basic lead acetate. The Slotta and Neisser iodometric oxidation method for chlorogenic acid has been investigated and improved.

10I. On the chemistry of coffee.

HUGHES, E. B. *Chem. and Ind., No. 29,* 462, July 17, 1948.

The principal changes in composition that take place when coffee beans are roasted are loss of water, destruction of sucrose, and partial destruction of the oil, chlorogenic acid, trigonelline, pentosans and other carbohydrates of the cell walls. It is now known that coffee contains no essential oil, but that the volatile oil consists of a mixture of organic compounds, including acetic acid, acetone, acetaldehyde, diacetyl, methyl carbinol, furfural, pyridine, also hydrogen sulphide, these being produced during roasting. It is probable that less volatile substances are involved, for example, phenolic decomposition products of chlorogenic acid, which is a tannin-like constituent of coffee, and condensation products of pheneols and aldehydes. A tarry substance, that is soluble in petroleum ether, is produced by roasting. It has an odor like guaiacol, is soluble in alkali, and is readily oxidized when coffee is allowed to become stale. The staling of coffee is now known to be due not to rancidity of the oil, but probably to the combined effects of volatilization, polymerization, hydrolysis and oxidation of the flavor constituents.

BIOLOGICAL SCIENCES

BIOCHEMISTRY

11I. Browning reaction involving copper-proteins.

THOMPSON, J. B., KOCHER, R. B., AND FRITZCHE, H. W. *Arch. Biochem., 18,* 41-9, July, 1948.

Reactions of copper-protein and certain ring components containing an ethylene group are described. The reactions are accompanied by marked changes in color as well as development of fragrant odors and fluorescence. Proteins can bind copper ion of the oxide possibly through forces existing in the polypeptides. The copper-protein complexes can promote a browning different from known non-enzymatic browning mechanisms.

12I. Glucose-protein reaction in dried egg albumen.

KLINE, R. W., AND STEWART, G. F. *Ind. Eng. Chem., 40,* 919-22 (1948).

These studies were initiated for purposes of elucidating the mechanism of the insolubility and color-deteriorative reactions in dried egg albumen. Results indicate that the initial reaction between glucose and the egg proteins is followed by others which give rise to fluorescence and insolubility. Added amino acids react preferentially with the glucose, although protein insolubility eventually ensues. Replacing the glucose in egg white with other sugars gives results substantiating the theory that the deterioration is of the Maillard type. Hydroxymethylfurfural does not appear to be an intermediate in the deteriorating reactions.

MICROBIOLOGY

13I. Specificity of the response of various assay organisms to nicotinic acid.

VOLCANI, B. E., AND SNELL, E. E. *Proc. Soc. Expt. Biol. & Med., 67,* 511-13, Apr., 1948.

Kynurenine and hydroxyanthranilic acid, intermediates in the conversion of tryptophan to nicotinic acid by Neurospora mutants, does not replace or enhance growth response to suboptimal amounts of nicotinic acid for *L. arabinosus, Leuc. mesenteroids, S. faecalis, Proteus vulgaris* and *Torula cremoris.* These organisms can therefore be used for microbiological assay of niacin. The technique and complete amino acid media used is described.

14I. Experimental enterococcal food poisoning in man.

OSLER, A. G., BUCHBINDER, L., AND STEFFEN, G. I. *Proc. Soc. Expt. Biol. & Med., 67,* 456-9 (1948).

An attempt to determine whether *Streptococcus faecalis* can act as a food poisoning agent was made using kittens and human volunteers. Short incubation period was found and 7 of 26 volunteers showed symptoms of acute gastric or intestinal disturbance. Kittens were found to be unsatisfactory.

15I. Studies on enterococcal food poisoning.

DANGLER, G., AND STEFFEN, G. I. *J. Milk and Food Tech., 11,* 242-3, July-Aug., 1948.

Enterococci in food poisoning are as important as staphylococci. Method for determination is described.

NUTRITION

16I. The nutritive value of homogenized milk: a review.
TROUT, G. M. *J. Dairy Sci., 31,* 627-55, Aug., 1948.

A review of the nutritive value of homogenized milk brought forth the following conclusions: The homogeneity of properly homogenized milk assures equal distribution of fat, vitamin A and added vitamin D. Homogenization retards or inhibits copper induced oxidized flavor. The smooth uniform consistency of properly homogenized milk contributes to its palatability. Proper homogenization changes normal hard-curd milk to a soft-curd milk which appears to be digested slightly more easily but neither more quickly nor more completely than hard-curd milk despite a faster stomach-emptying time. Reduction in size of fat globules by homogenization does not increase fat digestibility.

17I. Improving the nutritive value of flour. II. Further studies on the effect of supplementing enriched flour with B-complex vitamins and some observations on the use of 80% extraction flour.
WESTERMAN, B. D., AND TEMPLETON, F. *J. Nutr., 36,* 187-203, Aug., 1948.

Experiments were conducted on albino rats to determine the effect on growth, maintenance, reproduction and length of life of the use of whole wheat, enriched flour, enriched flour supplemented with other B-complex vitamins, and 80% extraction flour in the diets. Whole wheat and enriched flour did not support normal growth and reproduction in the rats when included in the diets as sources of the B-complex vitamins, at either 40 or 60% level. Enriched flour supplemented further with B vitamins supported better growth, maintenance, reproduction and length of life than enriched flour alone. The addition of choline, pyridoxine, and riboflavin to the enriched flour resulted in greater weight gain, than choline and pyridoxine. Choline, pyridoxine and calcium pantothenate resulted in better gains. The addition of choline, pyridoxine, calcium pantothenate, riboflavin and thiamine to enriched flour made good weight gains in the rats but not equal to the stock diet.

18I. The nature of the supplementary value of the proteins in milled corn meal and milled wheat flour with dried food yeasts.
SURE, B. *J. Nutr., 36,* 59-63, July, 1948.

The biological value of milled wheat flour can be increased by the addition of food yeasts and the supplementary value is due to lysine. The supplementary value of food yeasts when added to milled white corn meal is due to lysine and tryptophane.

19I. The supplementary effect between the proteins of a heat-treated soybean meal ("Soma meal") and a South African strain of yellow maize seed ("Eksteen").
MYBURGH, S. J. *Onderstepoort J. Vet. Sci. and Animal Ind., 21,* 301-4 (1947); *Biol. Abst., 22J,* 13, No. 16539, Aug.-Sept., 1948.

The biological values of the maize and soybean meal determined separately were found to be 69.9 and 63.3, respectively. The average biological value for them combined was 73.5, indicating a small supplementary effect. The use of Hubbel salt mixture or Hawk and Oser's did not affect the values secured.

20I. A comparison of the nutritive value of egg proteins and their amino acid content.
HESS, W. C., et al. *Proc. Soc. Expt. Biol. & Med., 67,* 552-6, Apr., 1948.

The difficulty of assaying nutritional values of proteins by analyzing for the essential amino acids is effectively demonstrated by these experiments. Other factors besides the amino acid content play a role in the biological value of proteins. Feeding experiments and analytical data are presented.

21I. Blood test show fish equal to meat in nutrition.
NILSON, H. W., AND WILSON, S. J. *Canner, 107,* 15, Aug. 14, 1948.

Tests conducted at the Fish and Wildlife Service laboratory in College Park, Md. show the effect of a fish diet on the red cell count and hemoglobin value of human blood have proven that fishery foods are the equal of meat. Protein and mineral content of fishery foods is also the equal of meat. Protein and mineral values of all animal foods are probably the same, regardless of species. The recent experiments showed that from 89 to 96% of fishery foods is digestible, while 87 to 90% of beef and chicken is digestible.

22I. The influence of ascorbic acid, sodium ascorbate, calcium ascorbate and orange juice on dental enamel.
RUSKIN, S. L., MERRILL, A. T., AND RUSKIN, O. *Am. J. Digestive Diseases, 15,* 302-3, Sept., 1948.

Normal drinking of orange juice does not appear to influence the enamel of the teeth except where cavitation has already been produced. Under these circumstances it would appear to be extremely important that all dental cavitation should be promptly filled, particularly in children. The use of ascorbic acid should also be replaced by a neutral salt, such as the sodium or calcium, both of which fail to show any involvement of the dental enamel.

23I. New B vitamin discovery.
FRAENKEL, G. *Sci. N. L., 54,* 62, July 24, 1948.

Discovery of a new vitamin named B_T for the mealworm or *Tenebrio molitor* which requires it for growth and survival has been announced. Although it is not yet known whether the vitamin is required by humans and other animals or insects, it is thought that it may have an anti-anemia effect. Mealworms may prove valuable in anemia studies since they are very sensitive to lack of both folic acid and the new vitamin B_T.

24I. Effect of amino acid deficiency on rat liver before and after partial hepatectomy.
RAPPORT, D., CANZANELLI, A., AND GUILD, R. *Proc. Soc. Expt. Biol. and Med., 68,* 137-9, May, 1948.

Results are in line with findings of Harrison and Lang in that zein, gelatin and gliadin were inadequate for restoration of liver protein following a 48 hr. fast. Partial hepatectomy results in regeneration of the liver to normal size within 10-14 days, nitrogen content of regenerating liver being 2.67% on first day and below normal into second week. Diets containing gelatin and zein as sole source of protein had no effect on total weight and total solids of regenerated liver 96 hours after partial hepatectomy. Nitrogen concentration of regenerated liver of rats on casein diet were only slightly lower than before hepatectomy.

25I. Fat rancidity and biological antioxidants.
BARNES, R. H. *Biol. Antioxidants, Trans. 1st Conf.* 49-55 (1946); *J. Am. Oil Chem. Soc., 25,* 189, May, 1948.

Feeding rancid fat caused a marked depression of the growth rate of rats on purified diets. When the rancid fat was replaced with fresh lard the rats grew normally; other supplements had less effect. The stability of rat body fat was not affected by feeding antioxidants. Feeding tung oil decreased the stability while butterfat gave increased body fat stability. The keeping time (stability) of the body fat of young rats on a vitamin E-deficient diet could be related to the tocopherol content of the fat. By such data it was shown that in such rats α- and β-tocopherol are better deposited than the γ-isomer.

26I. Does glutamic acid have any effect on learning?
STELLAR, E., AND MCELROY, W. D. *Science, 108,* 281-3, Sept. 10, 1948.

There is no effect of excess glutamic acid on the maze-learning ability of the strain of rats tested. It appears that the facilitating effects of glutamic acid on learning that have been reported are not general. Because of the controls, it is not likely that the positive results can be considered some function of the basic diet used, the age of the animals, the type of behavioral test employed, or the dosages of glutamic acid, although variation on any one of these variables could conceivably have affected results obtained in such an experiment. Strain differences remain as the only possible variable that could account for the difference in results between these experiments and that of Zimmerman and Ross. Other negative results with albino rats indicate that the strain difference is not a matter of whether the rats are albino or pigmented, but it is possible that the beneficial effects of glutamic acid might be specific to the Sherman

strain of albino rats. Further experiments will be done in which proline and other compounds metabolically related to glutamic acid will be studied. At this point, however, it must be concluded that there is little evidence for a facilitating effect of excess glutamic acid feeding on the learning ability of the rat.

FOOD PRODUCTS

BAKING AND BAKERY PRODUCTS

27I. The role of starch in bread-staling.

GEDDES, W. F., AND BICE, C. W. *Bibl. Sci. Ind Rep., 9,* 673, PBL 89296, May 21, 1948.

A review and annotated bibliography of the scientific and technological literature in which the following points are treated: why bread-staling is a problem, the meaning of bread-staling methods of evaluating staling, theoretical aspects of starch and its retrogradation, past work contributing staling theories, technology and control of bread-staling, and a suggested program of future research.

28I. Investigations on the influence of l-ascorbic acid and related compounds on the baking quality of flour.

MALTHA, P. R. A., DEVENTER, HOLLAND, AND KLUWER, A. E., 215p. 1946; *Biol. Abst., 22,* No. 5900, Mar., 1948.

The purpose of these studies was to determine whether the isomers of l-ascorbic acid and d-ascorbic acid, as well as d-glucoascorbic acid, oxytetronic acid, and reductic acid, show a similar effect to the improving influence of l-ascorbic acid on the baking quality of flour. No unanimity of opinion exists concerning the manner in which oxidizing agents improve baking quality, whether indirectly by inhibiting the proteolytic enzymes present in dough, or directly by acting upon the gluten proteins. According to both concepts, the oxidation of glutathione is involved. From the viewpoint of the theory of direct action, the oxidized form is unable to bring about inactivation of proteolytic enzymes; according to those who adhere to the theory of direct action, the oxidized glutathione can no longer cause a direct modification of the gluten proteins by reducing their disulfide bridges.

Improving properties were investigated by means of baking tests and extensographic tests. Of all substances investigated, only reductic acid caused an improvement comparable with that of l-ascorbic acid; the effect of the other substances was of little or no importance. Based on these observations, an explanation is proposed for the different effects of the various compounds tested on baking quality. When these compounds are present in the dough, each of them is oxidized, producing the dehydro form of the acids. Only dehydro-l-ascorbic, acid and dehydroreductic acid are capable, however, of oxidizing glutathione, and this reaction takes place rapidly. The remaining substances are not, or only to a very small extent, capable of bringing about glutathione oxidation, and therefore have only a slight influence on the baking quality.

CANNED FOODS

29I. Aluminum cans.

NICKELSEN, D. *Mod. Pack., 21,* 134-7, April, 1948.

A review of the properties, uses, and methods of handling of aluminum food containers as used in Norway. Among the advantages claimed for this type of container are: no blackening of cans, no metallic scent or taste, no solution of detrimental metal in food, easy opening, and lighter weight of cans. Several disadvantages are also noted such as the softness of aluminum which makes special protection in shipping containers necessary. The fact that some foods attack aluminum with the evolution of hydrogen is, in many instances, a distinct disadvantage. The practical storage life of plums in lacquered aluminum cans, for instance, is only about 5 months at 22° C. The use of anodized and/or lacquered can material is preferable in most instances.

30I. Preserving tinned crustacean meat.

GANUCHEAU, J. J. Assignor to Southern Shell Fish Co., Inc. 2,448,970, Sept. 7, 1948.

The method of canning the meat of crabs and other crustaceans which consists in depositing the meat in a can, depositing in the can a regulating mixture of a solution of common salt containing disodium phosphate and citric acid to cover the meat in the can, the mixture having a hydrogen-ion concentration between 4 and 6.5 pH, and thereafter sealing the can and subjecting the same to a sterilizing temperature.

31I. Canned fish of improved palatability and process of preparing same.

SJOSTROM, L. B. Assignor to Arthur D. Little, Inc. 2,446,889, Aug. 19, 1948.

In the preparation of cooked fish packaged in sterilized containers wherein the fish normally develop undesirable flavor during sterilization, the method of improving the flavor of the sterilized fish comprising treating the fish after cooking but before sterilization with a non-toxic edible alkali.

DEHYDRATED FOODS

32I. Dehydration of corn.

SALO, P. W. Assignor to General Mills, Inc. 2,446,162, July 27, 1948.

Process of dehydrating corn which comprises blanching the corn, partially dehydrating the corn, then deforming the corn kernels while at a moisture content within the approximate range of 10 to 30% so as to alter their natural cellular structure without reducing the kernels to a finely divided condition.

33I. Process for drying egg substance and resulting product.

FREY, C. N., AND MILLER, G. E. Assignors to Standard Brands Inc. 2,447,063, Aug. 17, 1948.

A process for drying egg substance which comprises incorporating a propylene ester of a higher fatty acid belonging to the group consisting of lauric, palmitic, stearic and oleic acids with egg substance, and then drying.

34I. The quality, solubility and density of powdered whole milk in relation to some variations in the manufacturing process. 1. Keeping quality.

MANUS, L. J., AND ASHWORTH, U. S. *J. Dairy Sci., 31,* 517-21, July, 1948.

Preheat treatment of milk at 170° F. for 30 min. or 180° F. for 10 min. resulted in powdered milk of good palatability even after storage, air-packed for 10 months at 45° F. Preheat treatment at 170° F. for 10 min. was less effective. Preheat treatment at 160° F. for 30 min. gave powders of poor keeping quality at 45° F. air-packed. Precondensation of milk to 40% solids after preheat treatment gave better powders than milk precondensed to 20% solids. All air-packed powders stored at 100° F. became oxidized in flavor, but powders made from milk preheat-treated at 170° F. for 10 or 30 min. and at 180° F. for 10 min. and precondensed to 40% solids deteriorated in palatability slightly less than those precondensed to 20% solids.

FISH AND SEAFOOD

35I. Keeping time and quality of sea food fillets.

CASTELL, C. H. *Western Fisheries, 35,* 34, 36, Apr., 1948; *Comm. Fisheries Abst., 1,* 19, July, 1948.

At 32° F. most commercial fillets spoil in 9 to 13 days; at 37° to 38° F., this is reduced to 4 to 6 days. The fillets are always heavily contaminated with spoilage bacteria. In order to determine the effect of these bacteria, a series of fillets were cut from codfish in such a way that bacterial contamination was very low. These were stored in sterile glass containers at 38° in parallel with commercially prepared fillets. At 6 days the commercial fillets began to develop typical off odors and their amine values showed that they were rapidly reaching the unpalatable stage .By 9 days they were completely spoiled. Up to 18 days there was no off-odor from any of the carefully prepared fillets. At 19 days, one of the six had a slight "fishy" odor. At 24 days this fillet was badly spoiled and one other had a sour odor. The experiment was terminated at 40 days, and at this time four of the original six fillets had not developed any observable changes in color or odor.

Similar tests were made many times, and when sufficient care was taken, fillets rarely showed any signs of spoilage before

25 or 30 days. It should be mentioned, also, that once or twice daily the fish were removed from storage and examined for the development of spoilage odors. It is very probable that many of those that spoiled did so because of accidental contamination during this handling.

36I. The fish liver oil industry.

BUTLER, C. *Fishery Leaflet 233,* March, 1948; *Comm. Fish. Abst., 1,* 11, July, 1948.

The literature contains many highly technical reports of isolated segments of vitamin oil processing, such as the characteristics of specific vitamin oils, or a method of analysis; but no unified description of the many ramifications of the industry has been available. This report is designed to bring together into one publication the widely scattered information about this relatively young industry. For purposes of this report, the vitamin-bearing materials are divided into two classes: (1) high oil content-low potency, and (2) low oil content-high potency. The processing methods utilized for class 1 are described as (a) steaming, (b) cold flotation, (c) pressure extraction, (d) pressure cooking; processes for class 2 material are described as (a) alkali digestion, (b) enzymatic modification, (c) acid digestion, (d) solvent extraction. The patent literature on processes is reviewed briefly with examples of applications.

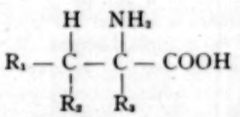
The advantages and disadvantages of the principal methods for the preservation of fish livers such as icing, freezing, salting and chemical preservation are pointed out as they affect the established processing methods.

FLAVORS AND FLAVORING

37I. Imitation maple flavor.

KREMERS, R. E. Assignor to General Foods Corp. 2,446,478, Aug. 3, 1948.

The process of producing a maple flavor which comprises reacting, at a temperature in the approximate range of 100° C. to 170° C., a reducing saccharide with an amino acid of the general formula



wherein R_1 is H, OH, CH_3, or COOH, R_2 is H or CH_3, and R_3 is H or CH_3, the reaction mixture being in a substantially anhydrous molten state at least at the end of the reaction and the duration of the reaction varying inversely with the temperature and being limited at a given temperature to avoid caramelization masking the maple flavor of the reaction product.

FROZEN FOOD

38I. Frozen homogenized milk. IV. Keeping quality of frozen homogenized milk after thawing.

BABCOCK, C. J. et al. *J. Dairy Sci., 31,* 805-10, Sept., 1948.

The flavors during storage of homogenized milk which has been held in the frozen state and then thawed are similar to those of fresh homogenized milk. Frozen homogenized milk may be held at normal temperatures without deterioration for longer periods than fresh homogenized milk. There is no bacterial problem during storage, and when thawed, compares with fresh homogenized milk.

39I. Frozen homogenized milk. V. Effect of age before freezing on the keeping quality of frozen homogenized milk.

BABCOCK, C. J. et al. *J. Dairy Sci., 31,* 811-15, Sept., 1948.

Homogenized milk should be frozen as quickly as possible after processing, but if the milk is of good quality it may be kept as long as 120 hrs. at 1-67° C. before freezing without adversely affecting the keeping quality of the frozen product.

40I. Cold storage won't "pasteurize" frozen food.

GUNDERSON, M. F., AND ROSE, K. D. *U. S. Egg and Poultry Mag., 54,* 9-11, Sept., 1948.

Pathogenic enteric bacilli are killed rapidly in chicken chow mein stored at — 14° F. during the first five days. After that, the death rate drops off until a more or less resistant bacterial population remains in the product. The normal saprophytic flora appear to be killed less rapidly. In either instance the numbers of bacteria remaining after any given storage period depend primarily on the amount of initial contamination. When this is high even storage for as long as nine months does not assure a low count. Processors of pre-cooked frozen foods cannot reply on prolonged storage to reduce bacterial counts. They must use sanitary production methods in order to turn out products that are bacteriologically acceptable.

FRUIT AND FRUIT JUICES

41I. Prepared fresh McIntosh apple slices.

ESSELEN, W. B., RASMUSSEN, C. L., AND FELLERS, C. R. *Fruit Prod. J., 27,* 276-9, June, 1948.

Various methods were compared for preparing sliced fresh apples for bakery or consumer use in pies. Preliminary treatment in all cases was to hold the slices in 1% brine for ½-2 hrs., rinse and drain. Further treatments were (a) holding slices for 10 min. in sulfur dioxide solutions varying from 100 to 2500 p.p.m. and (b) holding for various times in various concentrations and combinations of acids, sodium benzoate and ascorbic acid with and without 0.1% calcium chloride. In general the 1500 p.p.m. SO_2 was found satisfactory. Soft textured apples should have the addition of 0.1% $CaCl_2$ to the SO_2 solution. Such treatment maintains good quality in the sliced apples for 1-2 weeks at room temperature and for 3 weeks or longer at 35° F.

42I. The use of the tenderometer for the determination of the firmness of apples, peaches, and pears.

LEE, F. A., AND OBERLE, G. D. *Fruit Prod. J., 27,* 244-5, April-May, 1948.

The harvesting of commercial fruits at the proper stage of firmness for market and for processing has long been of interest to people who would prefer to determine the picking time by objective methods. The tenderometer was used on ripening peaches, pears and apples with the object of establishing values to determine the harvesting date of the fruit, and the method appears applicable. The tenderometer was also compared to the pressure tester, using apples in the experiment. Very high correlation indicates that either instrument can be used.

43I. Benzene hexachloride in processed peaches.

DAVIS, L. L. *Food Pack., 24,* 35-6, July, 1948.

Canned peaches from 17 different seedlings and five named varieties, Golden Jubilee, Triogem, Early Hale Haven, Hale Haven and July Elberta, that had received the regular zinc-lead-arsenate-sulfur sprays, except that three pounds of 6% γ-isomer benzene hexachloride per 100 gal. of water was substituted in the regular spray schedule in the "shuck" and "first cover" sprays, were examined organoleptically for evidence of benzene hexachloride. As a check on the tasting panel, a single sample of canned Elberta peaches that had not been sprayed with benzene hexachloride was also included. The tests show that (1) Musty, off-flavor was detected either by taste or smell, or both, by some of the tasting panel, but not by all members, in all samples of canned peaches that had been sprayed with benzene hexachloride. (2) No member of the testing panel reported any musty, bitter or off-flavor in the one sample of canned peaches that had not been sprayed with benzene hexachloride. In fact, the testing panel were led to believe that there might be several samples that had not been sprayed with benzene hexachloride. (3) Benzene hexachloride in water can be detected by smell in one part per ten million, and by taste in one part per million.

44I. Effect of ion-exchange treatment on the stability of apple juice.

CHALLINOR, S. W., KIESER, M. E., AND POLLARD, A. *Nature, 161,* 1023-25, June 26, 1948.

The ion exchange treatment of apple juice seemed to effect the removal or partial removal of nutrients necessary for the growth of microorganisms. Juices so treated become less liable to microbiological spoilage.

45I. The composition of the sugars in Florida Valencia orange juice.

CURL, A. L., AND VELDHUIS, M. K. *Fruit Prod. J., 27,* 342-3, Aug., 1948.

Sucrose and invert sugar are the principal sugars in Florida Valencia concentrated orange juice. These data were obtained through chemical and polarimetric data. In the six samples tested, the sugar content averaged 79% of the total soluble solids, approximately half of total sugar estimated as sucrose, one quarter dextrose, and one quarter levulose.

46I. Vitamin C content of citrus juice concentrates.

ISRAELASHVILI, S., AND FEIGENBAUM, J. *Food Manuf., 23,* 381, Aug., 1948.

The use of pectolytic enzymes, viz. pectinase, in the preparation of high concentrates of citrus juice as suggested by Geer would appear to result in considerable loss of vitamin C, but it was found that this loss could be greatly reduced by special preparation of the juice before concentration. It was found that pasteurized juices lose less than 10% of their vitamin during pectinase treatment and concentration. After reconstitution, which was easily effected, the juice retained the cloudy colloidal appearance which resembled the original natural juice. These results would appear to point to the possibility of practical utilization of pectinase in the production of high citrus juice concentrate with relatively small losses only of vitamin C.

47I. Canned tangerine juice. I. Exploratory packs.

MOORE, E. L. et al. *Fruit Prod. J., 27,* 340-41, Aug., 1948.

Little difference was found in off-flavor developed on storage of the packs pasteurized at 205° and 240° F. Ethyl caffeate was objectionable, and no general agreement was reached as to the value of other antioxidants used. There was no significant difference in flavor between juices when one was deaerated before pasteurizaion and the other not when both were processed by pasteurization, deaeration, deoiling at 240° F., flashing at this temperature into a chamber under 9-11 in. of vacuum and cooking to 190-195° F.

PECTIN—JAMS AND JELLIES

48I. Characterization of tomato pectinesterase.

PITHAWALA, H. R., SAVUR, G. R., AND SREENIVASAN, A. *Arch. Biochem., 17,* 235-48, May, 1948.

Pectinesterase is present in large amounts only in tomato fruit and citrus peel. Activity was determined by estimation of methanol liberated from the pectin. The enzyme is best extracted at pH8 and 0.1M Na_2HPO_4. The concentrate may be obtained by precipitation with 50% ammonium sulfate from a buffer extract above pH7 preceded by discarding initial precipitation with 20% concentration of salt. Activity is a maximum at pH 7.8 and 50° C. for 10 min. reaction time. The enzyme is unstable below pH6.0 and completely inactivated after 30 sec. at 80° C. Effect of cations is to increase the activity markedly at lower pH, little at optimum pH. Undiluted juices may be rapidly clarified by this enzyme.

49I. Pectin studies. III. The nitric acid ester (preliminary).

LAMPITT, L. H. et al. *J. Soc. Chem. Ind., 67,* 101-104 (1948).

A reproducible nitro ester was obtainable from any one sample of pectin. An approximate parallelism was observed between the viscosity values of aqueous solutions of pectin and of acetone solutions of nitro ester. Two methods for nitrogen determination were compared.

POULTRY

50I. The storage of frozen eviscerated poultry.

STEWART, G. F., AND LOWE, B. *Ice & Refrig., 114,* 37-8, June, 1948.

The study shows that eviscerated poultry (excluding giblets) stored for six months at 0° F. or below is generally in good condition if it has been properly protected against dehydration. Beyond this time the product wil show progressive changes in flavor, and more particularly, in texture. Broilers especially begin to develop a texture defect when cooked which is best described as "dry" or "sawdusty." Chicken giblets deteriorate much faster than the rest of the carcass. Of these, the liver changes most rapidly, developing a pronounced bitter flavor and off-color (yellow) in three months at 0° F. Packing the giblets with the rest of the bird is satisfactory only if the poultry is to be stored for very short periods of time (not over 3 months) and then only if stored at 0° F. or lower.

Tight-fitting, moisture-vaporproof packaging is a "must" for eviscerated poultry when it is to be stored for extended periods of time. Tin cans are ideal packages in this respect but are not generally practical except for institutional packs. Aluminum foil (or laminated sheets), Pliofilm, Saran, Tralon, Cryo-Vac and similar types of film make good protection. Wherever these films are used it is necessary to eliminate (so far as is practical) the air pockets and crevices during wrapping.

51I. Eviscerating method and apparatus.

TRELEASE, R. D., AND KOONZ, C. H. Assignors to Swift and Co. 2,448,693, Sept. 7, 1948.

A method for eviscerating poultry carcass comprising the step of cutting a slit in the posterior portion of the carcass, manually removing through the slit a substantial portion of the viscera, particularly the intestines, liver, and gizzard, and thereafter removing by pneumatic suction the lungs, kidneys, testes, ovaries, and other loose vicera not previously manually removed, simultaneously severing while pneumatically removing viscera which is normally not readily separable from other portions of the carcass, and pneumatically cleaning the internal surfaces from which the viscera has been removed.

PHYSICAL CHEMISTRY

52I. On the nature of the interaction between starch and iodine.

STEIN, R. S., AND RUNDLE, R. E. *J. Chem. Phys., 16,* 195-207, March, 1948.

It is postulated that the interaction between starch and iodine in the amylose-iodine complex is of dipolar nature. A model for such dipolar interaction is proposed and the necessity for a cooperative effect is discussed. The interaction energy is calculated as a function of a parameter x and it is shown that this parameter possesses a critical value at which a "condensation" of iodine into the complex occurs. It is demonstrated that it is physically reasonable for this parameter to attain its critical value. It is shown that additional stabilization may occur as a result of the formation of a resonating "polyiodine" chain at high dipolar interaction having a I-I distance and heat of formation which compares favorably with experiment. Application of the theory is made in discussing the stability of the polyvinyl alcohol-iodine complex. The color of these complexes is discussed in terms of the theory.

53I. Starch blue.

TURNER, N. C. *Science, 108,* 302, Sept. 17, 1948.

Using tracer techniques with radioactive iodine it is shown that even though the presence of iodine in starch is necessary for the formation of blue color, its presence is not necessary for the retention of blue color. Starch stained blue with radioactive iodine remained blue after extracting the iodine with solvent. It is suggested that the blue color is a change induced in the starch molecule by iodine acting catalytically in the presence of oxygen.

54I. Photochemical degradation of starch.

PEAT, S. BOURNE, E. J., AND WHELAN, W. J. *Nature, 161,* 762-3, May 15, 1948.

Amylose in dilute solution is degraded by ultra-violet light, all of the carbon eventually appearing as CO_2. The course of the degradation is followed by copper reduction, iodine stain and pH.

55I. A new tool for infra-red studies.

BAILLY, R. *Science, 108,* 143, Aug. 6, 1948.

The image tube developed during the war for use on the sniperscope and snooperscope for night fighting has been adapted for use on a microscope. Materials normally opaque to visible light can be seen readily with infra-red of 9000 A. and new details are seen in specimens prepared for use with visible light. The image tube can also be adapted to refractometers, goniometers and other optical instruments.

Call for Voluntary Research Papers for the 1949 I. F. T. Program to be held in San Francisco, California, July 10-14

Attendance at the National I. F. T. meetings has increased from year to year until in 1948 it passed the thousand mark. Because of this increase it has been necessary to expand the programs and to have several concurrent sessions. Such a plan offers the advantage that those attending the meetings may choose a session of particular interest to them. On the contrary it has the disadvantage that when several programs are held at the same time some members may not find it possible to listen to all the papers of interest to them. This objection, however, is not particularly serious since the better papers will appear in the Journal and will eventually be available to all members.

Since the meetings in 1948 were so successful it is planned to follow the same system and have several concurrent sessions in the 1949 program. The plan is to hold one or two half-day meetings of general interest to the entire membership. In addition, a series of other meetings will be held. One session being organized by Dr. Lloyd Hall will be devoted to papers concerned with production, with a view of appealing to those particularly interested in production. Another session, being organized by Dr. B. E. Proctor, will consist of a series of symposia devoted to specialized subjects. It is also planned to hold a number of less formal round table discussions for those interested in important and highly specialized fields such as citrus products, potato processing, etc. The purpose of these meetings is to bring together individuals in rather restricted but very important fields. Plans for the discussion groups are being formulated by E. M. Mrak. A third session will be an innovation in that it will be devoted entirely to *contributed original research papers.* This session is being organized by Dr. George Stewart. It is in connection with this session that the Program Committee would like to request that members interested in presenting papers dealing with their own research, fill out the attached form and send it to Dr. George Stewart, Iowa State College, Ames, Iowa.

Papers should be prepared and presented in accordance with the style for FOOD TECHNOLOGY. If authors are not familiar with this style, they can obtain a copy of a booklet entitled "Suggestions for Authors" by writing to C. Olin Ball, Editor, FOOD TECHNOLOGY, 408 E. Broadway, Maumee, Ohio.

(See next page for announcement to authors of papers for the program)

Abstract of Paper to be Presented to the Institute of Food Technologists

ATTENTION OF AUTHORS

By action of the Program Committee of the Institute of Food Technologists the following regulations governing the presentation of original research papers are in force:

1. No title will be accepted unless it is accompanied by an abstract. A title is to be sent in only when the author has the intention of presenting the paper.

2. *Length of Abstracts*—The abstract must be short, 250 words or less. Longer abstracts will be shortened by the Chairman of the Program Committee, when time does not permit returning an abstract to the author.

3. *Contents of Abstracts*—An abstract should contain a succinct statement of (1) the problem under investigation, (2) the essential results obtained.

4. *Time for Presentation of Papers*—The time allowed for the presentation of a paper is 25 minutes.

5. *Apparatus*—When an author intends to use any sort of projection apparatus, or requires any special arrangements for the presentation of his paper, the Program Chairman should be so notified at the time of presentation of the abstract so that suitable arrangements may be made. Persons requiring the use of motion picture or projection equipment should state the size.

6. *Time for Submitting Abstracts*—To be included in the program, this abstract must be in the hands of the Chairman of the Program Committee not later than May 1, and earlier submission will be much appreciated. Mail abstracts to Dr. George Stewart, Iowa State College, Ames, Iowa.

7. *Preparation of Manuscript*—Papers should be prepared and ready for consideration for publication in FOOD TECHNOLOGY at the time of presentation.

(Title of Paper)

(Author) (City) (State)

(Institution) (Department)

ABSTRACT

Find the Full Wealth of Natural Flavor

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PURE MONO SODIUM GLUTAMATE

Ac'cent improves the flavors in most meat products, poultry, fish and vegetables in freezing or canning methods. Samples will be sent upon request along with more specific information outlining the suggested testing procedures. *Ac'cent* is available in 200 pound units for bulk purposes.

Today, it seems as if the entire food world is discovering the unique advantages of mono sodium glutamate. Although it is already a standard ingredient in many familiar food products, even greater opportunities are yet to be fully appreciated. With a few comparative tests, you can readily see how this vegetable seasoning builds up the flavor characteristics in many foods.

Ac'cent is mono sodium glutamate at its best. Produced solely from vegetable sources, it is over 99% pure—odorless, colorless, and adds no flavor of its own. Thus, *Ac'cent* increases the acceptability of many processed foods by providing a taste satisfaction that is rarely attained without it.

Extensive research has proved that *Ac'cent* balances, blends, and intensifies the total flavor effect without itself being noticeable. Mushrooms, corn, asparagus, green beans, lima beans, and broccoli are made more appetizing, and the natural flavor of carrots and cauliflower are more clearly defined. *Ac'cent* raises the flavor level of most meat, poultry, and fish products, and remarkably enriches soups, consommes, bouillons, and blended seasonings. Still, it actually suppresses some other undesirable flavor notes that have hindered the popularity of certain foods.

Ac'cent is now at the service of every food processor to help guard the true food flavors all the way from processing to the table. Basic formulas need not be altered and a surprisingly small amount is required to produce pleasing results. It blends well with all other seasonings and even emphasizes their effectiveness.

Try using the time-tested properties of *Ac'cent* in your own operation, and take full advantage of those flavors naturally present in your food products.

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